REMARKS

Present Status of the Application

The Office Action rejected all presently-pending claims 1-16. Specifically, the Office Action rejected claims 1, 4-5, 8-10, 13 and 16 under 35 U.S.C. 102(e), as being anticipated by Jo et al. (U.S. 2003/0117325 A1). The Office Action also rejected claims 2-3, 6-7, 11-12 and 14-15 under 35 U.S.C. 103(a) as being unpatentable over Joe et al. in view of Ngounou Kouam et al. (U.S. Patent 6,606,062). Applicants have amended claims 1, 5 and 9 to improve clarity. After entry of the foregoing amendments, claims 1-16 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of Office Action Rejections

The Office Action rejected claims 1, 4-5, 8-10, 13 and 16 under 35 U.S.C. 102(e), as being anticipated by Jo et al. (U.S. 2003/0117325 A1; hereafter Jo) and stated that the cited reference has disclosed all the claimed features of the present invention.

Applicants respectfully traverse the rejections for at least the reasons set forth below.

It is well established that anticipation under 35 U.S.C. 102 requires each and every elements of the rejected claims must be disclosed exactly by a single prior art reference.

The amended independent claims 1, 5 and 9 are allowable for at least the reason that Jo fails to teach or disclose each and every features of the amended independent claims 1, 5 and 9. As amended, claims 1, 5 and 9 recite respectively:

> Claim 1. An antenna on a printed circuit board (PCB) with a compensating capacitor, the antenna comprising:

a radiator disposed over a first surface of the PCB, wherein the radiator includes a short circuit stub section, a signal feeding section , and a tuning section coupled together at a joint, wherein the tuning section includes a bending portion;

a signal feeding line, disposed on the first surface of the PCB and electrically coupled to the radiator at the signal feeding section of the radiator; and

a ground layer, disposed on a second surface of the PCB, wherein **the radiator is off-site from the ground layer** with one terminal of the short circuit stub section being electrically coupled to the ground layer and the bending portion of the tuning section being overlapping with the ground layer to form the compensating capacitor.

Claim 5. An antenna on a printed circuit board (PCB) with a compensating capacitor, the antenna comprising:

a radiator disposed over a first surface of the PCB, wherein the radiator includes a signal feeding section and a tuning section coupled together at a joint, wherein the tuning section includes a bending portion;

a signal feeding line on the first surface of the PCB, electrically coupled to the radiator at the signal feeding section of the radiator; and

a ground layer, disposed on a second surface of the PCB, wherein **the radiator is off-site from the ground layer** with the bending portion of the tuning section being overlapping with the ground layer to form the compensating capacitor.

Claim 9. (currently amended) A method for forming an antenna on a printed circuit board (PCB), the method comprising:

forming a radiator over a first surface of the PCB, wherein the radiator at least includes a signal feeding section and a tuning section coupled at a joint;

forming a signal feeding line on the PCB, wherein the signal feeding line is electrically coupled to the radiator at the signal feeding section; and

forming a ground layer over a second surface of the PCB, wherein **the ground layer is off-site from the radiator** and a portion of the tuning section is arranged to have overlapping with a portion of the ground layer to form a compensating capacitor.

(***Emphasis added***). Applicants assert that claims 1, 5 and 9 patently define over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above.

In the present invention, in order to decrease the length of the tuning section without spoiling the characteristics of the tuning section, **only a portion of the tuning section is bended to overlap the ground layer while the length of the tuning section is reduced**. That is, **the main body of the radiator is off-site from the ground layer with only the bended portion of the tuning section being overlapping the ground layer (as shown in Fig. 8 of the present invention).** More specifically, since **only the bending portion of the tuning section overlaps the ground layer to form a compensating capacitor between the bending portion of the tuning section and the ground layer**, the compensating capacitor can compensate the lost of capacitance due to reducing the length of the tuning section.

However, in the cited art, Jo emphasizes that the radiator 10 is disposed over a ground plane 12 (paragraph 0032). Apparently, as shown in Fig. 1 and Fig. 21 of the cited art, the radiator 10 and radiator 101 are completely overlapping with the ground plane 12 and ground plane 160 respectively. Moreover, Jo also emphasizes that the length of a gap 162 (between the radiator 101 and the ground plane 160 as shown in Fig. 21) dominates the input impedance and bandwidth of the antenna 100 (paragraph [0079]). It is clear that, in the cited art, radiator 101 should be completely overlapping with the ground plane 160 so that, by varying the length of the gap 162, the bandwidth of both the high and low frequency bands can be changed. Hence, it is understood that radiator completely overlapping with the ground plane is the main feature of Jo's application. Furthermore, Jo neither teaches nor suggests that the radiator can be off-site from the ground plane with only a portion of the tuning section being overlapping the ground layer. In

other words, Jo fails to teach how to reduce the tuning section without affecting the required LC coupling effect.

Therefore, Jo substantially fails to teach each and every feature of claims 1, 5 and 9, and therefore, Jo cannot possibly anticipate the claimed invention as claimed in the amended independent claims 1, 5 and 9 in this regard.

Claims 3-4, 8, 10, 13 and 16, which depend from claims 1, 5 and 9 respectively, are also patentable over Jo, at least because of their dependency from an allowable base claim.

Further, the Office Action also rejected claims 2-3, 6-7, 11-12 and 14-15 under 35 U.S.C. 103(a) as being unpatentable over Jo et al. in view of Ngounou Kouam et al. (U.S. Patent 6,606,062; hereafter Ngounou) and mentioned that the combination of the cited arts possesses the claimed features of the present invention.

Since claims 2-3, 6-7, 11-12 and 14-15 are dependent claims which further define the invention recited in claims 1, 5 and 9, Applicants respectfully assert that these claims also are in condition for allowance according to the same reasons as discussed above for the rejection 102. Thus, reconsideration and withdrawal of this rejection are respectively requested.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1-16 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,
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